CA3 ONHW Q90
82 U6502 V.14

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MANN TESTING LABORATORIES
REPORTS
Reference 31

CA3 ONHW Q90
82 U6502 V.14

MANN TESTING LABORATORIES LTD.
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Reference 34

December 19, 1985

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Ms. Anne Koven
Upper Ottawa Street Landfill Study
20 Jackson Street
Suite 412
Hamilton, Ontario
L8P 1L2

URBAN MUNICIPAL
APR 30 1987
GOVERNMENT DOCUMENTS

Re: Analysis of Three Polynuclear Aromatic Hydrocarbons from "High-Volume Filters"

Dear Anne:

The four "high-volume filter" samples dated November 21, 1985 and the total volume of air sampled for each, is listed below:

- #29012903 - an off-site control - 2,096 m^3
- #29012904 - an upwind sample - 1,934 m^3
- #29012905 - a downwind sample - 2,035 m^3
- Transportation Blank - 0m^3

These samples were analysed specifically for

Benzo(a)pyrene
Dibenzo(a,h)anthracene
Benzo(ghi)perylene

Prior to sampling each high volume filter was spiked with 10 microlitres of a Deuterated Standard, containing:

- Benzo(a) pyrene-D_{12} @ 971 ng/ul (99.5% pure)
- Dibenzo(a,h)anthracene-D_{14} @ 1548 ng/ul (99.5% pure)
- Benzo(ghi) perylene-D_{12} @ 736 ng/ul (98.5% pure)

using a 50 ml syringe. This standard was made 18 hours before spiking and was ultra-sonified just prior to spiking to ensure mixing. This spike was allowed to air dry before packaging and subsequent use.

Members: Association of Official Racing Chemists, American Chemical Society, Canadian Society of Forensic Science, Chemical Institute of Canada, American Society for Testing and Materials, Canadian Federation of Independent Business, Better Business Bureau, Association of the Chemical Profession of Ontario, Association of Professional Engineers of the Province of Ontario, Canadian Association of Fire Chiefs, American Industrial Hygiene Association, Air Pollution Control Association, Canadian Society of Safety Engineering, International Society for Respiratory Protection

After receiving the used filters, they were soxhlet extracted for 18 hours with 175 mls of dichloromethane (CH_2Cl_2). The samples were then dried through anhydrous Na_2SO_4 including two rinsing aliquots of 25 mls CH_2Cl_2. The Na_2SO_4 was subsequently washed with three aliquots of 5 mls CH_2Cl_2. Samples were then reduced on a rotary evaporator to 5 mls and then transferred to 15 ml centrifuge tubes along with three washes of 2 mls CH_2Cl_2. A high purity nitrogen gas stream subsequently evaporated the samples to their final volume of 1 mls. The sample extracts were yellowish in colour while the transportation blank was colourless.

Analysis for the natural compounds and their deuterated counterparts was accomplished using a GC/MSD system. The instrument conditions are outlined below:

Instrument:	Hewlett-Packard Mass Selective Detector coupled with a H.P. 5890 Gas Chromatograph through a direct interface
Mode:	Electron Impact Selected Ion Monitoring
Column:	30 m DB-5, 0.25 mm i.d. 0.25 um film thickness
Temperatures:	Initial 70^oC Initial Hold: 1.0 min Program Rate: 20^oC/min Final Temp: 120^oC Program Rate: 35^oC/min Final Temp: 285^oC Final Hold: 14.0 min

Quantitation of the PAH's was achieved by the comparison of the quantitation ion intensity of the unknown to the deuterated internal standards.

In conclusion, the results from the four high volume filters are:

	29012903 Control	29012904 Upwind	29012905 Downwind	Trans Blank
Benzo(a)pyrene	56.5	56.9	58.0	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND
Benzo(ghi)perylene	73.8	81.1	81.8	ND

ND = Not Detected
Units: ng/1000 m^3

Should you need further information regarding these results, please do not hesitate to give me a call.

Sincerely,

MANN TESTING LABORATORIES LTD.

for

Cecilia Chan, M.Sc.
Manager, Research & Development

D Sutherland

Dale Sutherland, B.Sc.
Chemist, Research & Development

DS/jh

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